

Mr. C. E. Buzzell, Leaf River, Ill.: April 10th, one small group five days in, increasing on 11th, and disappeared on the 12th. 11th, small group, new, two days past meridian, in view on 12th; clouds, 13th, with clear disc on 14th. 28th, one small group observed through clouds. 29th, good definition, two small groups in north latitude two days west of meridian, with a trail of smaller spots connecting them; all were unchanged on the 30th, with clear disc on May 1st.

Mr. John W. James, Riley, Ill.: none seen until 29th, then a group of small spots, about one-half day past sun's meridian.

Mr. M. A. Veeder, Lyons, N. Y.: 1st and 2d, faculae appeared by rotation, spots forming in their vicinity on 10th, and fading out again by 14th, the faculae alone being seen on the eastern limb, 15th. Faint faculae near the eastern limb, 5th and 11th. On the 22d faculae appeared by rotation, and on the 28th spots had formed in their vicinity, continuing with many changes until the end of the month. Observations were poor or lacking on 4th, 8th, 9th, 13th, 23d, and 27th.

H. D. Govey, North Lewisburgh, Ohio: sun spots were observed on the 12th and 30th.

VERIFICATIONS.

FORECASTS FOR 24 HOURS IN ADVANCE.

[Verifications made by Assistant Professor C. F. Marvin, assisted by Mr. H. E. Williams, chief clerk of the Forecast Division.]

The forecasts for districts east of the Rocky Mountains for April, 1890, were made by 1st Lieutenant Richard E. Thompson, 6th Infantry, Signal Officer, and those for the Pacific coast districts were made at San Francisco, Cal., by 2d Lieutenant J. E. Maxfield, Signal Corps.

Percentages of forecasts verified, April, 1890.

States.		States.	
Maine.....	74.8	Kentucky.....	82.1
New Hampshire.....	72.7	Ohio.....	74.9
Vermont.....	73.9	West Virginia.....	76.9
Massachusetts.....	76.4	Indiana.....	80.5
Rhode Island.....	75.5	Illinois.....	83.0
Connecticut.....	73.1	Lower Michigan.....	80.0
Eastern New York.....	81.1	Upper Michigan.....	78.6
Western New York.....	78.9	Wisconsin.....	78.5
Eastern Pennsylvania.....	78.0	Minnesota.....	80.1
Western Pennsylvania.....	77.5	Iowa.....	80.7
New Jersey.....	76.7	Kansas.....	71.2
Delaware.....	76.5	Nebraska.....	76.6
Maryland.....	77.1	Missouri.....	70.9
District of Columbia.....	78.2	Colorado.....	81.2
Virginia.....	79.7	North Dakota.....	85.9
North Carolina.....	80.3	South Dakota.....	85.3
South Carolina.....	80.2	Southern California*.....	85.7
Georgia.....	77.7	Northern California*.....	87.1
Eastern Florida.....	85.0	Oregon*.....	81.7
Western Florida.....	93.9	Washington*.....	75.9
Alabama.....	82.9	By elements: Weather.....	83.5
Mississippi.....	79.9	Temperature.....	71.7
Louisiana.....	77.3	Monthly percentage of weather and	
Texas.....	78.0	temperature combined.....	78.8
Arkansas.....	78.0		
Tennessee.....	79.5		

*In determining the monthly percentage of weather and temperature combined, the Pacific coast states are not included. †The forecasts of temperature in districts east of the Rocky Mountains for April, 1890, were made with reference to the maximum temperature alone; that is, a prediction of warmer or cooler indicated that the maximum temperature of the day designated would be higher or lower than the maximum of the previous day. ‡The monthly percentage of weather and temperature combined is determined by multiplying the percentage of weather by 6, and the percentage of temperature by 4, and dividing their sum by 10.

FORECASTS FOR 48 HOURS IN ADVANCE.

Appreciating the great importance that long time predictions possess for the general public the Chief Signal Officer has authorized forecasts for forty-eight and seventy-two hours, cov-

ering the second and third days in advance. Such forecasts are optional with the predicting officer, and are only made when clearly in the public interest, and cover, in all cases, considerable areas of country, and are not confined to localities.

Percentages of verifications of forecasts made for second day in advance. Number of predictions made: weather, 86; temperature, 42. Percentages of verifications: weather, 86.9; temperature, 77.4. Weather and temperature combined, 84.3.

No forecasts for seventy-two hours were made during the month.

CAUTIONARY SIGNALS FOR APRIL, 1890.

Statement showing percentages of justifications of wind signals for the month of April, 1890:

Wind signals.—(Ordered by Lieutenant Richard E. Thompson.) Total number of signals ordered, sixty-nine; justified as to velocity, wholly, forty-three, partly, two; justified as to direction, sixty-six. Of the signals ordered, fifty-five were cautionary signals, of which thirty-four were wholly, and one partly justified, and fourteen were storm signals, of which nine were wholly, and one partly justified. Thirty-four signals were ordered for easterly winds, of which thirty-three were justified, and thirty-five were ordered for westerly winds, of which thirty-three were justified. Percentage of justifications, 68.0.

Cold-wave signals.—(Ordered by Assistant Professor T. Russell.) Total number of signals ordered, thirty-three; justified, thirteen. Percentage of justifications, 39.4.

Percentages of verifications of weather and temperature signals reported by directors of the various State Weather Services for April, 1890.

States.	Weather.	Temperature.	States.	Weather.	Temperature.
Illinois.....	82.0	76.6	Nebraska.....	84.9	87.2
Indiana.....	79.0	83.0	New Jersey.....	87.5	88.8
Kansas.....	82.6	84.2	New York.....	86.5	85.2
Kentucky.....	91.0	90.0	Ohio.....	82.0	88.0
Michigan.....	88.5	85.5	Pennsylvania.....	83.0	89.0
Minnesota.....	74.0	78.0	South Carolina.....	84.9	90.6
Missouri.....	76.0				

STATE WEATHER SERVICES.

[Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.]

The following extracts and summaries are republished from reports for April, 1890, of the directors of the various state weather services:

ALABAMA.

Temperature.—Highest monthly mean, 68.8, at Citronelle; lowest monthly mean, 61.5, at Valley Head; maximum, 89, at Wiggins, 15th; minimum, 31, at Elkmont, 4th and 11th; greatest local monthly range, 53, at Guntersville and Wiggins; least local monthly range, 29, at Union Springs.

Precipitation.—Greatest monthly, 5.94, at Carrollton; least monthly, 1.20, at Mount Willing.

Wind.—Prevailing direction, southwest.—P. H. Mell, Signal Corps, Auburn, director.

ARKANSAS.

Temperature.—The average was about 2 below the normal; maximum, 93,

at Lead Hill; minimum, 33, at Ozone. A number of stations reported light frost on the 10th; no damage except to delicate plants.

Precipitation.—The average was 6.51 in excess of the normal of the past three years; greatest monthly, 12.95, at Hot Springs; least monthly, 5.71, at Lead Hill.—M. F. Locke, Commissioner of Agriculture, Little Rock, director; W. U. Simons, Sergeant, Signal Corps, assistant.

COLORADO.

Temperature.—The mean was about 0.5 below the normal; highest monthly mean, 53.9, at Fruita; lowest monthly mean, 25.9, at Climax; maximum, 88, at Lamar, 11th; minimum, —3, at Climax, 8th; greatest local monthly range, 69, at Thon; least local monthly range, 41, at Alma.

Precipitation.—The average was about the normal of the last four years; greatest monthly, 5.59, at Kirk; least monthly, 0.08, at Villa Grove.
Wind.—Prevailing directions, west and south.—*Prof. F. H. Loud, Colorado Springs, director; W. S. Miller, Sergeant, Signal Corps, assistant.*

ILLINOIS.

Temperature.—The mean was 1.4 above the normal of the last fifteen years; highest monthly mean, 58.6, at Golconda; lowest monthly mean, 44.1, at Lake Forest; maximum, 92, at Mascoutah, 8th; minimum, 15, at Sycamore, 1st; greatest monthly range, 70, at Mascoutah; least monthly range, 48, at Golconda, Cockrell, Martinsville, Olney, and Winnebago.
Precipitation.—Greatest monthly, 8.20, at Mascoutah; least monthly, 1.69, at Lacon.
Wind.—Prevailing direction, northeast.—*John Craig, Sergeant, Signal Corps, Springfield, in charge.*

INDIANA.

Temperature.—The mean was 1.1 above the normal; highest monthly mean, 59.4, at Huntingburgh; lowest monthly mean, 45.9, at Point Isabel; maximum, 85, at Marengo, 8th and 13th; minimum, 20, at Delphi, 1st; greatest local monthly range, 60, at Point Isabel; least local monthly range, 43, at De Gonia Springs.
Precipitation.—The average precipitation was 1.30 above the normal; greatest monthly, 8.80, at Marengo; least monthly, 2.66, at Cannelton.
Wind.—Prevailing direction, northeast.—*Prof. H. A. Huston, La Fayette, director; C. F. R. Wappenhans, Sergeant, Signal Corps, assistant.*

IOWA WEATHER CROP BULLETIN SERVICE.

Temperature.—Highest monthly mean, 57.5, at Glenwood; lowest monthly mean, 48.0, at Wesley; maximum, 88, at Sioux City, 11th, and at Clarinda, 30th; minimum, 2, at Wesley, 1st; greatest local monthly range, 79, at Wesley; least local monthly range, 44, at Iowa City.
Precipitation.—Greatest monthly, 4.46, at Manson; least monthly, 0.38, at Glenwood.
Wind.—Prevailing direction, southeast.—*G. M. Chappel, Sergeant, Signal Corps, Des Moines, in charge, Iowa Weather Crop Bulletin Service.*

KANSAS.

Temperature.—The mean was 1.7 above the normal, the greatest excess occurring in the northeastern counties where it was 3.3, and the least excess in Sumner county where it was 0.2; highest monthly mean, 59.7, at Sedan; lowest monthly mean, 48.6, at Sharon Springs and Mankato; maximum, 98, at Kanopolis, 11th; minimum, 20, at Hoxie, 1st; greatest local monthly range, 71, at Burr Oak; least local monthly range, 35, at La Harpe; greatest daily range, 63, at Ellis, 7th; least daily range, 2, at Dodge City, 16th.
Precipitation.—The precipitation was 1.06 deficient in the eastern division; 1.00 in the middle division; in the western division there was an excess of 2.00; greatest monthly, 6.60, at Lakin; least monthly, 0.24, at Dorrance.
Wind.—Prevailing direction, northeast.—*Prof. J. T. Lovewell, Topeka, director; T. B. Jennings, Sergeant, Signal Corps, assistant.*

KENTUCKY.

Temperature.—The average temperature was about the same as the normal; highest monthly mean, 62.4, at Bowling Green; lowest monthly mean, 50.9, at Owenton; maximum, 92, at Bowling Green, 30th; minimum, 27.5, at Frankfort, 11th; greatest monthly range, 57.2, at Frankfort; least monthly range, 39, at Millersburg.
Precipitation.—The average was about one-half inch less than the normal; greatest monthly, 5.44, at Millersburg; least monthly, 3.31, at Pellville.
Wind.—Prevailing direction, south.—*Dr. E. A. Grant, Louisville, director; Frank Burke, Sergeant, Signal Corps, assistant.*

LOUISIANA.

Temperature.—The temperature averaged 0.5 above the normal; highest monthly mean, 70.8, at Cheneyville; lowest monthly mean, 64.0, at Grand Cane; maximum, 89, at Liberty Hill, 30th, at Cheneyville, 2d, and at Cameron, 14th and 15th; minimum, 37, at Liberty Hill, 10th; greatest local monthly range, 52, at Liberty Hill; least local monthly range, 28, at New Orleans.
Precipitation.—The precipitation averaged 2.50 above the normal for the month; greatest monthly, 16.85, at Columbia; least monthly, 2.11, at Houma.
Wind.—Prevailing direction, southeast.—*R. E. Kerkam, Sergeant, Signal Corps, New Orleans, in charge.*

MICHIGAN.

Temperature.—The temperature was above the normal in each section, from 0.1 in the central section to 1.8 in the northern section; highest monthly mean, 50.0, at Benton Harbor; lowest monthly mean, 32.7, at Atlantic; maximum, 81, at Weldon Creek, 12th; minimum, 1, at several stations, 1st; greatest local monthly range, 72, at Crystal Falls; least local monthly range, 34, at Atlantic; greatest daily range, 51, at Crystal Falls, 21st; least daily range, 2, at Cheboygan, 13th.
Precipitation.—The average was 0.57 above the normal of the past fifteen years; it was above the normal in all sections, except in the west half of the upper peninsula, where it was about 0.50 below; greatest monthly, 5.55, at Chelsea; least, 0.85, at Crystal Falls.
Wind.—Prevailing direction, northeast.—*N. B. Conger, Sergeant, Signal Corps, Lansing, director.*

MINNESOTA.

Temperature.—The month was warmer than usual throughout the state; highest monthly mean, 50.3, at Mankato; lowest monthly mean, 40.6, at Duluth; maximum, 84, at Medford, 11th; minimum, —17, at Pokegama Falls,

1st; greatest local monthly range, 88, at Pokegama Falls; least local monthly range, 51, at Duluth; greatest daily range, 51, at Moorhead, 29th; least daily range, 3, at Duluth, 18th.

Precipitation.—The precipitation was slightly in excess in the upper part of the Red River Valley, while at Moorhead, in the lower part, it was deficient by 2.21; elsewhere in the state it was deficient by 20 per cent.; greatest monthly, 2.95, at Rolling Green; least monthly, 0.19, at Moorhead.

Wind.—Prevailing direction, south.—*John Healy, Corporal, Signal Corps, Saint Paul, in charge.*

MISSISSIPPI.

Temperature.—The mean was about 0.8 above the normal; highest monthly mean, 70.4, at Moss Point; lowest monthly mean, 51.5, at Lake; maximum, 93, at Columbus, 15th; minimum, 34, at Lake, 10th.

Precipitation.—The average was about 1.08 below the normal; greatest monthly, 11.01, at Greenville; least monthly, 0.62, at Kosciusko.

Wind.—Prevailing direction, south.—*R. B. Fulton, Signal Corps, University, director.*

MISSOURI.

Temperature.—Highest monthly mean, 62.3, at Protem; lowest monthly mean, 51.2, at Kirksville and Warrensburg; maximum, 93, at Protem; minimum, 25, at Conception.

Precipitation.—Greatest monthly, 7.00, at Ironton; least monthly, 0.00, at Langdon and Craig.—*Prof. Francis E. Nipher, Saint Louis, director.*

METEOROLOGICAL REPORT OF THE MISSOURI STATE BOARD OF AGRICULTURE.

Temperature.—Highest monthly mean, 60.2, at Ozark; lowest monthly mean, 53.9, at Conception; maximum, 92, at Hannibal, 8th, at Liberty, 30th, and at Willow Springs, 9th; minimum, 25, at Conception, 1st; greatest local monthly range, 65, at Liberty; least local monthly range, 44, at Cairo, Ill.

Precipitation.—Greatest monthly, 7.00, at Kansas City; least monthly, 1.08, at Conception.

Wind.—Prevailing direction, northeast.—*Levi Chubbuck, Secretary of State Board of Agriculture, Columbia, director; A. L. McRae, Sergeant, Signal Corps, assistant.*

NEBRASKA.

The month has been decidedly warm and dry; the mean temperature was 4.0 above the normal, and the precipitation about one-half the usual amount.

Temperature.—Highest monthly mean, 58.0, at Howe; lowest monthly mean, 45.5, at Hay Springs; maximum, 94, at Wilcox; minimum, 7, at Fort Niobrara.

Precipitation.—The region of the greatest rainfall was the extreme southwest corner of the state, and next to this the southeastern. A narrow strip along the lower Platte and thence south to Franklin received less than one inch. A considerable fall of snow occurred in the northern part of the state.

Wind.—Prevailing direction, north.—*Prof. Goodwin D. Swezey, Crete, director; G. A. Loveland, Sergeant, Signal Corps, assistant.*

NEVADA.

Temperature.—The mean was slightly below the normal; highest monthly mean, 70.6, at El Dorado Canyon; lowest monthly mean, 37.2, at Ruby Hill; maximum, 96, at El Dorado Canyon, 28th; minimum, 8, at Ruby Hill, 1st; greatest monthly range, 72, at Elko; least monthly range, 33.0, at Ely.

Precipitation.—Greatest monthly, 2.60, at Ruby Hill; least monthly, 0.00, at Genoa and Sodaville.

Wind.—Prevailing direction, south.—*Prof. Chas. W. Friend, Carson City, director; H. E. Wilkinson, Corporal, Signal Corps, assistant.*

NEW ENGLAND METEOROLOGICAL SOCIETY.

Neither the temperature nor the amount of precipitation varied to any marked degree from the average of the month for previous years. There was a slight excess in precipitation in the south, but a general deficiency in the north, making a general average of 0.78 below the normal.

Temperature.—Highest monthly mean, 48.7, at Springfield; lowest monthly mean, 36.0, at Berlin Falls; maximum, 80, at Deerfield, 13th; minimum, 6, at West Milan, 2d; greatest local monthly range, 68, at West Milan; least local monthly range, 28, at Nantucket; greatest daily range, 58, at Berlin Mills; 23d; least daily range, 0, at Nahant, 9th.

Precipitation.—Greatest monthly, 4.99, at Uncasville; least monthly, 1.14, at West Milan.

Wind.—Prevailing direction, northwest.—*Prof. William H. Niles, Boston, Mass., president; Prof. Winslow Upton, Providence, R. I., secretary; J. Warren Smith, Private, Signal Corps, assistant.*

NEW JERSEY.

Temperature.—The mean was 2.5 above the normal; highest monthly mean, 58.3, at Oceanic; lowest monthly mean, 48.0, at Atlantic City; maximum, 80, at Readington, 18th and 14th; minimum, 21, at Egg Harbor City, 2d; greatest local monthly range, 60, at Beverly and Egg Harbor City; least local monthly range, 45, at Asbury Park; greatest daily range, 50, at Beverly, 18th; least daily range, 2, at Lambertville, 9th, 10th, and 25th.

Precipitation.—The average was 0.82 below the normal; greatest monthly, 4.58, at Egg Harbor City; least monthly, 1.89, at Locktown.

Wind.—Prevailing directions, northwest and southwest.—*E. W. McGann, Sergeant, Signal Corps, New Brunswick, in charge.*

NEW YORK.

Temperature.—The temperature was above the normal at all stations of the state, excepting those in the northern Champlain and Saint Lawrence valleys

and in the lower Hudson valley; maximum, 84, at Geneva, 12th; minimum, 5, at Sherman, 2d; greatest local monthly range, 67, at Wedgwood; least local monthly range, 40, at Buffalo.

Precipitation.—The precipitation was generally above the average in all sections of the state, excepting in the Champlain and Hudson valleys, on Long Island, and through a section extending from the central lake region along Lake Ontario to the upper Saint Lawrence valley.

Wind.—Prevailing direction, northwest.—*Prof. E. A. Fuertes, Ithaca, director; I. W. Brewer, Private, Signal Corps, assistant.*

NORTH CAROLINA.

Notwithstanding some damage by frost, the weather during the month was generally favorable for crops.

Temperature.—The temperature was 0.5 above the normal; highest monthly mean, 62.4, at Chattanooga, Tenn.; lowest monthly mean, 54.2, at Marion, Va.; maximum, 88, at Chapel Hill, Winslow, and Washington, 14th; minimum, 25, at Douglas, 2d; greatest local monthly range, 62, at Douglas; least local monthly range, 30, at Hatteras.

Precipitation.—The average for the state was 1.76 below the normal; greatest monthly, 4.31, at Washington; least monthly, 1.40, at Winslow.

Wind.—Prevailing direction, southwest.—*Dr. Herbert B. Battle, Raleigh, director; C. F. von Herrmann, Sergeant, Signal Corps, assistant.*

NORTH AND SOUTH DAKOTA.

Temperature.—The temperature for the state was about 6.4 above the normal; highest monthly mean, 52.3, at Wahpeton, S. Dak.; lowest monthly mean, 41.0, at Aberdeen, S. Dak.; maximum, 89, at Aberdeen, S. Dak., 30th; minimum, 8, at Rapid City, S. Dak., 1st; greatest local monthly range, 79, at Aberdeen, S. Dak.; least local monthly range, 55, at Etta Mine, S. Dak.

Precipitation.—The precipitation was 1.56 below the normal; greatest monthly, 2.12, at Canton, S. Dak.; least monthly, 0.10, at Davenport, N. Dak.

Wind.—Prevailing direction, southeast.—*S. W. Glenn, Sergeant, Signal Corps, Huron, S. Dak., in charge.*

OHIO.

Temperature.—The mean of the northern section, the middle section, the southern section, and of state was 1.4, 1.4, 1.7, and 1.5, respectively, above the averages for the sections and state; maximum, 86, at Portsmouth, 8th; minimum, 20, at Youngstown, 2d, and at Findlay on the 10th; greatest daily range of temperature, 49.5, at Yellow Springs, 11th; least daily range, 3.0, at New Alexandria, 24th.

Precipitation.—The means for the northern and middle sections were 1.39 and 0.86 above the averages for the sections, respectively, while the mean for the southern section was 0.22 below the average, and the mean for the state was 0.68 above the average for April; greatest monthly, 6.30, at Bellevue; least monthly, 1.68, at Wapakoneta.

Wind.—Prevailing direction, northeast.—*Prof. B. F. Thomas, Columbus, director; Lieut. Charles E. Kilbourne, secretary; C. M. Strong, Corporal, Signal Corps, assistant.*

OREGON.

The first two decades were cool and the third warm; the frost on the 11th and 12th injured the peach crop.

Temperature.—The mean was 0.2 above the normal; highest monthly mean, 53.2, at Hood River; lowest monthly mean, 44.0, at Joseph; maximum, 89, at Pendleton; minimum 10, at Silver Lake.

Precipitation.—The average was 1.68 below the normal; greatest monthly, 2.87, at Ellensburg; least monthly, 0.11, at North Powder. A trace of snow fell in the valleys of western Oregon, and from trace to 7.5 on the higher elevations and in the mountainous districts.

Wind.—Prevailing direction, southwest.—*Hon. H. E. Hayes, Master State Grange, Oswego, director; B. S. Pague, Sergeant, Signal Corps, assistant.*

PENNSYLVANIA.

Temperature.—The mean temperature was 3 above the normal; highest monthly mean, 53.7, at Annville; lowest monthly mean, 43.4, at Dyberry and Philipsburgh; maximum, 85, at Lewiston and Lynnpport, 12th; minimum, 12, at Charlesville and Columbus, 1st; greatest local monthly range, 44.1, at Somerset; least local monthly range, 16.7, at Eagle's Mere; greatest daily range, 60, at Ligonier, 17th; least daily range, 1, at Annville, 26th.

Precipitation.—The average was about 0.75 above the normal; greatest monthly, 5.50, at Blue Knob; least monthly, 1.75, at Lynnpport.

Wind.—Prevailing direction, northwest.—*Under direction of the Franklin Institute, Philadelphia; T. F. Townsend, Sergeant, Signal Corps, assistant.*

SOUTH CAROLINA.

The temperature was about normal. Frost on the 11th and 21st damaged corn, cotton, potatoes, and fruit. The precipitation was about the average.

Temperature.—Highest monthly mean, 66.9, at Hardeeville; lowest monthly mean, 58.9, at Camden; maximum, 91, at Hardeeville, 15th; minimum, 31, at Spartanburgh, 21st; greatest local monthly range, 57, at Spartanburgh; least monthly range, 37, at Timmons ville.

Precipitation.—Greatest monthly, 3.45, at Walhalla; least monthly, 1.10, at Winnsborough.

Wind.—Prevailing direction, southwest.—*Hon. A. P. Butler, Columbia, director; J. W. Cronk, Private, Signal Corps, assistant.*

TENNESSEE.

The month was noted for its large percentage of cloudiness and rainfall.

Temperature.—The mean was slightly above the normal of the last eight years; highest monthly mean, 63.0, at Kingston Springs; lowest monthly mean, 57.1, at Greeneville; maximum, 86, at Chattanooga, 8th, and at Waynes-

borough, 14th; minimum, 31, at Greeneville, Andersonville, Jacksboro, and Trenton, 11th; greatest local monthly range, 50, at Springdale; least local monthly range, 36, at Florence Station; greatest daily range, 44, at Hohenwald, 11th; least daily range, 4, at Knoxville, 17th, and at Milan, 23d.

Precipitation.—The average was slightly in excess of the normal of the last eight years; greatest monthly, 7.47, at Covington; least monthly, 1.94, at Grief.

Wind.—Prevailing direction, south.—*J. D. Plunket, M. D., Nashville, director; H. C. Bate, Signal Corps, assistant.*

TEXAS.

Temperature.—The temperature for the month varied but little from the normal; in the vicinity of the coast the departure was 1 below, while over other portions of the state it was from 1 to 4 above the normal; highest monthly mean, 76.5, at Rio Grande City; lowest monthly mean, 50.9, at Panhandle; maximum, 97, at Rio Grande City, 8th and 25th; minimum, 22, at Panhandle, 1st; greatest local monthly range, 62, at Colorado City and Fort Elliott; least local monthly range, 30, at Corpus Christi and La Grange.

Precipitation.—The precipitation for the month ranged from 3.00 to 8.00 in excess of the normal, except over the extreme western portion, where about the normal amount fell; greatest monthly, 13.60, at Gainesville; least monthly, 0.06, at El Paso.—*D. D. Bryan, Galveston, director; I. M. Cline, Sergeant, Signal Corps, assistant.*

Meteorological record of Army post surgeons, voluntary, and other co-operating observers, April, 1890.

Stations.	Temperature. (Fahrenheit.)				Precip'n.		Stations.	Temperature. (Fahrenheit.)				Precip'n.
	Max.	Min.	Mean.					Max.	Min.	Mean.		
<i>Alabama.</i>	0	0	0		<i>Ins.</i>		<i>California—Cont'd.</i>	0	0	0		<i>Ins.</i>
Bermuda *†.....	82	41	64.8	3.00			Barstow †.....	91	38	63.2	0.07	
Butler.....	85	42	66.1	5.12			Benicia Barracks.....	83	42	56.4	1.04	
Citronelle.....	88	48	68.8	3.08			Berkeley.....	77	41	52.5	2.18	
Columbia †.....	85	36	64.7	5.17			Centerville *.....	89	53	62.9	1.12	
Decatur (1) †.....	.....	.....	.....	4.72			Colegrove.....	.....	.....	.....	0.21	
Decatur (2) †.....	.....	.....	.....	3.15			Crescent City.....	.....	.....	.....	4.07	
Double Springs *.....	85	36	63.4	5.86			Evergreen.....	.....	.....	.....	0.74	
Elkmont.....	81	31	60.8	4.40			Fort Bidwell.....	77	20	47.8	0.92	
Evergreen †.....	85	41	61.8	3.25			Fort Gaston.....	85	31	55.6	2.94	
Florence.....	87	43	65.2	3.52			Fort Mason.....	78	41	53.5	1.22	
Gadsden.....	84	48	61.5	3.16			Georgetown.....	78	34	54.2	3.86	
Greensborough.....	85	32	59.2	3.32			Grass Valley.....	.....	.....	.....	3.69	
Guntersville.....	83	44	64.7	3.06			Hydesville †.....	70	29	50.2	1.63	
Livingston (1).....	84	43	66.3	1.20			Iowa Hill *.....	83	41	55.4	3.02	
Mount Willing.....	84	43	66.3	1.20			Jolon.....	.....	48	57.4	0.05	
Mt. Vernon B'ks.....	86	42	66.4	4.06			Julian.....	80	35	57.4	1.11	
Pine Apple.....	.....	.....	.....	T. †			La Grange *.....	91	39	59.8	1.45	
Tusculumbia (1).....	85	45	61.6	2.46			Lewis Creek.....	89	42	62.6	T.	
Union Springs.....	80	51	68.0	3.28			Los Banos (1) *.....	88	52	63.3	0.02	
Uniontown.....	86	45	65.6	2.64			Los Gatos (2).....	.....	.....	.....	1.25	
Valley Head †.....	80	42	60.0	3.67			Mendocino.....	63	35	49.6	3.46	
Wiggins.....	89	36	67.9	2.25			Oakland (1) *.....	87	42	54.9	1.51	
Carrollton.....	84	44	64.5	5.94			Pasadena.....	87	37	59.8	0.54	
<i>Alaska.</i>	48	13	34.7	4.94			Placerville *.....	77	33	49.3	3.51	
<i>Arizona.</i>	.....	.....	.....	.....			Presidio of S. F.....	81	38	52.0	1.42	
Ash Creek.....	.....	.....	.....	0.06			Riverside.....	93	36	58.0	0.06	
Ash Springs.....	.....	38	62.0	0.72			Sacramento (1).....	78	35	55.3	1.34	
Bangharts.....	.....	.....	.....	2.50			Salinas (1) *.....	86	42	52.6	0.60	
Bisbee.....	.....	.....	.....	0.15			San Diego B'ks.....	84	44	60.2	0.05	
Chiri Cabua M't's.....	.....	.....	.....	0.89			Santa Barbara (1).....	88	43	56.0	0.31	
Cooley's Springs†.....	.....	.....	.....	2.36			Santa Clara *.....	79	37	56.0	0.47	
Dragoon.....	.....	.....	.....	0.32			Santa Maria.....	83	37	57.0	0.10	
Dos Cabezos.....	.....	.....	.....	0.95			Sonoma.....	82	39	55.8	1.80	
Eagle Pass.....	.....	38	53.5	0.79			Steeles.....	87	39	56.8	0.30	
Florence.....	96	43	68.0	0.68			Stockton (1).....	.....	.....	.....	1.06	
Fort Apache.....	80	31	53.6	0.51			Susanville †.....	78	32	48.2	1.06	
Fort Bowie.....	81	33	61.2	0.70			Upper Mattole.....	92	38	57.2	4.38	
Fort Huachuca.....	83	32	60.1	0.34			Vacaville (1) *.....	83	46	58.3	1.12	
Fort Grant.....	79	31	59.0	0.92			Walla Walla Ck.....	76	23	47.2	1.24	
Fort Lowell.....	94	39	65.1	0.75			Walnut Creek.....	84	40	57.9	0.42	
Fort McDowell.....	98	41	67.3	0.55			Wheatland.....	83	39	58.5	1.40	
Fort Mojave.....	98	40	70.0	0.00			<i>Colorado.</i>	.....	.....	.....	3.02	
Fort Verde.....	86	35	58.0	0.90			Agate *.....	74	18	37.0	4.25	
Gila Bend *.....	90	52	73.3	0.00			Alma.....	50	9	30.2	4.35	
Grand Central Mine.....	.....	.....	.....	0.15			Apishapa.....	83	26	47.6	0.74	
Holbrook.....	81	31	55.2	1.01			Aroya.....	.....	.....	.....	2.25	
Mount Huachuca.....	92	34	63.6	0.32			Beaver Creek.....	.....	.....	.....	2.90	
Natural Bridge.....	.....	.....	.....	1.00			Bennet.....	85	29	36.2	4.00	
Phoenix.....	90	42	64.2	0.51			Boulder Canon.....	.....	.....	.....	3.20	
San Carlos.....	90	37	63.4	1.11			Box Elder.....	.....	.....	.....	2.08	
Show Low.....	.....	.....	.....	1.40			Breckenridge.....	65	0	32.2	2.15	
Signal †.....	94	39	66.2	0.16			Brandon.....	.....	.....	.....	2.03	
Strawberry.....	.....	.....	.....	0.40			Brush.....	.....	.....	.....	2.38	
Tevison.....	.....	.....	.....	3.00			Byers *.....	82	18	53.2	.....
Tip Top †.....	.....	.....	.....	0.56			Cafon City.....	80	16	52.0	4.16	
Tucson (1) †.....	94	41	67.4	0.91			Carlisle.....	.....	.....	.....	5.53	
Walnut Grove.....	.....	.....	.....	0.30			Castle Rock.....	78	16	47.4	1.41	
Walnut Ranch.....	.....	.....	.....	0.29			Cheyenne Wells *.....	84	24	50.8	1.95	
Wilgus.....	.....	.....	.....	1.19			Climax *.....	48	3	25.9	3.50	
<i>Arkansas.</i>	.....	.....	.....	.....			Crook.....	.....	.....	.....	2.66	
Arkansas City †.....	.....	.....	.....	7.29			Cumbres *.....	53	15	29.6	.....
Camden †.....	.....	.....	.....	7.97			Deer Trail *.....	78	20	41.6	1.20	
Dardanelle.....	.....	.....	.....	15.00			Delta †.....	79	21	47.0	0.98	
Forrest City †.....	84	44	65.4	7.93			Denver (Jes. Col.).....	78	18	46.4	2.99	
Fulton.....	.....	.....	.....	10.22			Durango (1).....	.....	.....	.....	2.30	
Helena (1) †.....	.....	.....	.....	8.55			Durango (2).....	70	20	47.8	2.75	
Hot Springs.....	.....	37	.....	12.95			Eagle Farm.....	.....	.....	.....	4.40	
Lead Hill.....	93	38	62.4	5.71			Emma.....	.....	.....	.....	0.27	
Little Rock B'ks.....	87	38	62.4	8.44			First View *.....	84	24	51.0	1.73	
Newport (1) †.....	.....	.....	.....	10.41			Fort Collins (near).....	.....	.....	.....	4.48	
Winslow *.....	75	45	57.4	7.52			Fort Collins.....	78	14	46.5	3.92	
<i>California.</i>	.....	.....	.....	.....			Fort Crawford.....	66	21	45.3	1.22	
Alcatraz Island.....	71	45	53.2	1.45			Fort Lewis.....	65	12	41.6	3.13	
Angel Island.....	81	39	53.0	1.26			Fort Logan.....	80	12	48.7	2.45	